demanded an hour to be ready for tapping; this charge, however, required for its high sulphur content to remain in the furnace four hours, and received total additions of 660 kilogrammes pig iron, 900 kilogrammes 26 per cent. Spiegeleisen, and 250 kilogrammes of ferro-manganese, and yielded a finished product which contained 0'120 per cent. B> 0*56 Mn, and 0*08 C. There was thus necessary three hours longer furnace working and a considerable expense in materials in order to bring down the sulphur content of 0*22 per cent, (after melting down) to 0"12 per cent., thus only-to remove 0*10 per cent, from it.

It has been sought to remove sulphur by other means; thus Saniter has proposed calcium chloride in conjunction with a very limey slag, which is rendered thin by means of fluorspar. This process shares with desulphurisation by manganese the like disadvantages of great expense in material and time, and is as a result unsafe. It has not, therefore, boon possible in practice to adopt it.

In the most recent times, experience with the production of steel in the electric furnace has apparently furnished full explanation as to the problem of complete removal of sulphur from iron. According to Dr. Ing. Goilenkircheu and Professor B. Osann (" St. u. E.," 1908, pp. 873 and 1071), sulphur can only be completely removed from the iron if it is converted into a form in which it is soluble in the slag, but not in the metal. This form is calcium sulphide. In ordor, howevor, that CaS can be produced, the slag must be free from metallic oxides, since otherwise (according to Professor B. Osann, " St. u. E.," 1908, pp. 1501 and 1507) iron nulphido will be continually reformed according to the equation FeO + OaS=KoS + CaO, and thereby any sulphur removed must be returned to the metal.

In order tha'c the slag should maintain freedom from oxides, reducing agents such as calcium carbide or ferro-wilicon wmsfc be added, and for possibility of its existence free from metallic oxides, enormously high temperatures must be employed. The latter condition the open-hearth furnace is not able to fulfil, and therefore a very complete desulphurisation is not possible therein. The difficulties of desulphurisation in the